

**Russound®**

# **ST2 Smart Tuner**

**Dual AM/FM Tuner**

## **INSTRUCTION MANUAL**



# IMPORTANT SAFEGUARDS



**WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**



**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER - SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

If you have any questions please call Russound Inc. at 1-800-638-8055 or 603-659-5170.

## Safety Instructions:

1. Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions - The safety and operating instructions should be retained for future reference.
3. Heed Warnings - All warnings on the appliance in the operating instructions should be adhered to.
4. Follow Instructions - All operating and user instructions should be followed.
5. Water and Moisture - The appliance should not be used near water; for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.
6. Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer. An appliance and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the appliance and cart combination to overturn.
7. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings, or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.



11. Grounding or Polarization - Precaution should be taken so that the grounding or polarization means of an appliance is not defeated.
12. Power Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, receptacles, and the point where they exit from the appliance.
13. Cleaning - The appliance should be cleaned only as recommended by the manufacturer.
14. Non-use Periods - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
15. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through the openings.
16. Damage Requiring Service - The appliance should be serviced by qualified service personnel when:

- A. The power supply cord or the plug has been damaged; or
- B. Objects have fallen, liquid has been spilled into the appliance; or
- C. The appliance has been exposed to rain; or
- D. The appliance does not appear to operate normally; or
- E. The appliance has been dropped or the enclosure is damaged.

17. Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

## Precautions:

1. Power – WARNING: BEFORE TURNING ON THE POWER FOR THE FIRST TIME, READ THE FOLLOWING SECTION CAREFULLY.
2. Do Not Touch The ST2 With Wet Hands – Do not handle the ST2 or power cord when your hands are wet or damp. If water or any other liquid enters the ST2 cabinet, unplug the unit from power immediately and take the ST2 to a qualified service person for inspection.
3. Location of ST2 – Place the ST2 in a well-ventilated location. Take special care to provide plenty of ventilation on all sides of the ST2 especially when it is placed in an audio rack. If ventilation is blocked, the ST2 may overheat and malfunction. Do not expose the ST2 to direct sun light or heating units as the ST2 internal components temperature may rise and shorten the life of the components. Avoid damp and dusty places.
4. Care – From time to time you should wipe off the front and side panels of the cabinet with a soft cloth. Do not use rough material, thinners, alcohol or other chemical solvents or cloths since this may damage the finish or remove the panel lettering.

This device complies with Part 15B of the FCC Rules.

Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Russound could void the user's authority to operate this equipment.

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# INTRODUCTION

## DESCRIPTION

Thank you for choosing the Russound ST2 Smart Tuner. Whether you are adding radio to an existing system, expanding a CAI Series system or taking advantage of the CAV6.6's robust RNET™ communication link, the ST2 Tuner is designed to meet your needs.

The ST2 Tuner is like having two radios in one. The two AM/FM tuner modules share one set of controls and display on the front of the unit, but each runs independently. This arrangement allows two different broadcasts at the same time in a multi-room audio distribution system.

In addition to the traditional AM/FM broadcast tuner function, the ST2 Tuner can store up to 72 favorites, or *memory presets*. These are stored in groups of six called *banks*. There are six banks for each tuner. Each preset and each bank can be given a custom name of your choice.

The ST2 Tuner can be controlled from the front panel or by the dedicated ST2-KP tuner keypad. It can also be controlled by the ST2-RC IR remote aimed at the tuner's front panel IR receiver. The ST2-RC IR codes can be learned into any IR learning remote control for easy system integration. It can also be controlled by IR signals received through the IR connections on the rear panel from IR repeating system commonly used in distributed audio systems.

If the ST2 Tuner is part of an RNET-enabled system such as the CAV6.6-S2 system, the tuner can be controlled through an UNO-S2 keypad.

The ST2 Tuner also has an RS-232 port to support fully bi-directional integration into whole-house control systems such as Crestron® and AMX®.

## FEATURES

- Dual AM/FM Tuners
- Compact single rack unit chassis (Rack mount ears included)
- Six banks of six memory presets each per tuner for storing AM/FM station settings (72 total presets)
- Two Favorite presets per tuner with ST2-RC
- Stereo or mono mode
- Local or distant mode
- Dedicated IR remote control
- Individual IR direct inputs for each tuner
- Front panel IR receiver
- Supports optional ST2-KP tuner keypads
- RNET connections send tuner frequency and control information to UNO keypad display
- RS-232 control and programming. User settings can be backed up and restored.

## INSTALLATION APPLICATIONS

### RNET-enabled System

When the ST2 Tuner is used with an RNET-enabled device such as the CAV6.6 and is connected to it through the Link In or Link Out port, the tuner will be controlled by the CAV6.6 through the UNO-S2 keypad. Through RNET, tuner information such as Tuner 1 or 2, station frequency, preset names and AM/FM band is displayed on UNO-S2 keypads. An additional RNET device can be connected to an existing ST2 by using the Link Out of the first unit into the Link In of the second unit.

**Before using the ST2 tuner with the CAV6.6, you must assign source numbers to Tuner 1 and 2 in the ST2 Setup Menu AND complete the CAV6.6's Source Setup procedure to identify the tuner as a "Peripheral" device and assign Source Numbers. The CAV6.6 requires firmware version 2.00.01 or higher to control each tuner through RNET.**

## IR-controlled System

### CAi Series -

The ST2 Tuner can be controlled by infrared commands received through the two IR connections on the rear panel. The ST2 contains two individual tuners, which makes it act as two sources in the CAi system. There are two source audio outputs and two IR connections - one for each tuner in the ST2. You will need at least one IR link cable (Russound P/N 09-0508) for these connections (one is supplied with each CAi system). There are two unique IR code sets for Tuner 1 and Tuner 2, which allow each to be controlled independently from either IR connection. These codes can be learned from the ST2-RC remote control into the CA-LRC1 remote control and/or the DSC and DAN IR learning keypads. If you are using an IR-controlled system from another manufacturer, installation should be similar. The ST2 IR codes may be learned into many other manufacturers' remote controls that have learning capability for unified control over the A/V equipment.

### A-BUS® System -

The ST2 Tuner can be used in an A-BUS system with an audio distribution hub such as the A-H484 and IR-repeating keypads such as the A-KP2. The connections on the rear panel are designed to receive IR signals from a repeating system commonly used in A-BUS distributed audio systems.

For A-BUS applications, as with the CAi series installation, the two tuners in the ST2 unit must be set up as two sources, with two source audio inputs and two IR connections. You will need two IR link cables for these connections. The two IR code sets can be learned from the ST2-RC remote into the A-LRC1 remote control.

**Note:** Optional ST2-KP keypads can be used to provide control for the ST2 Tuner and are designed to be used with IR-controlled systems.

## RS-232 Controlled System

The ST2 Tuner can be controlled using the RNET protocol provided via the RS-232 port on the rear panel. It can also be controlled by any RS-232-enabled control system (e.g., Crestron, AMX). Information on RS-232 operation is available to dealers on the Russound web site, [www.russound.com](http://www.russound.com).

## BOX CONTENTS

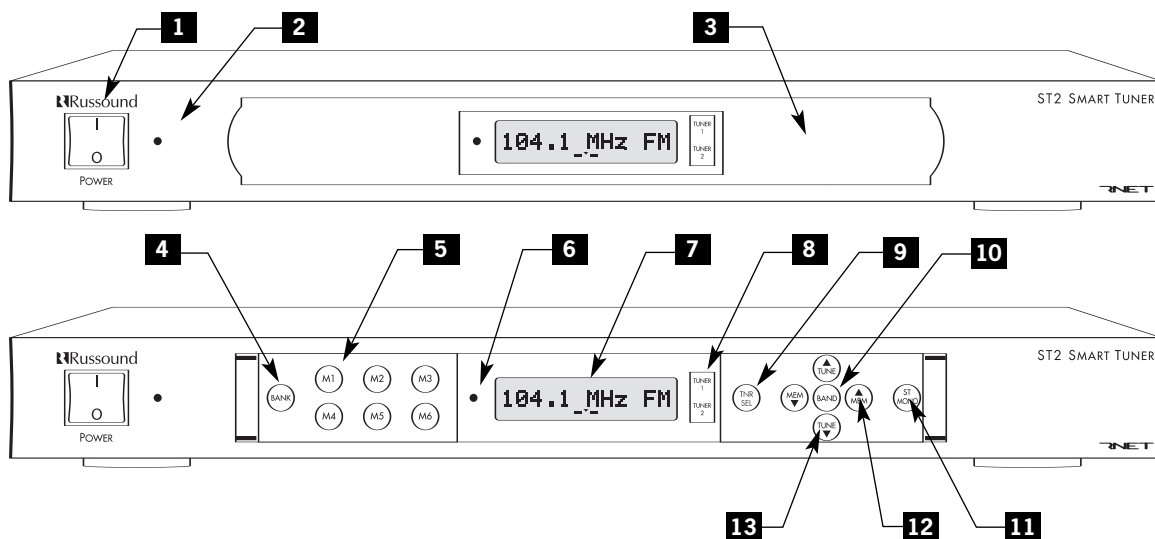
The ST2 Tuner comes with the parts needed to setup and operate the component. These include:

- ST2 Tuner (two AM/FM modules)
- ST2-RC remote control
- 12VDC power supply
- AM loop antenna (2)
- FM antenna (2)
- RCA audio cable (2)
- Rack mount ears

If any of these parts are missing, please call Russound at 800-638-8055 ext. 501 for assistance.

# COMPONENT GUIDE

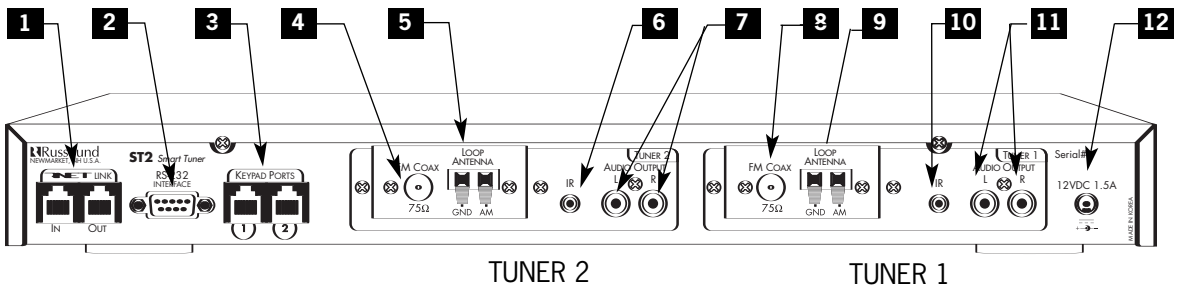
## ST2 FRONT PANEL



- 1** MAIN POWER SWITCH - Turns power on and off
- 2** POWER ON/OFF LED - Indicates power on or off
- 3** REMOVABLE COVER LENS - Covers the selection buttons on the tuner
- 4** BANK SELECT BUTTON - Selects bank 1-6
- 5** MEMORY SELECT BUTTONS - Sets and selects memory presets 1-6 for each bank
- 6** IR RECEIVER - Receives IR signal from remote control
- 7** LCD PANEL - 12-character backlit display shows station, custom names, etc.
- 8** TUNER 1/TUNER 2 - Backlit tuner selection indicator
- 9** TNR SEL - Selects Tuner 1 or Tuner 2, and accesses tuner setup menus
- 10** BAND - Selects AM or FM band, enters menu selections when programming
- 11** ST/MONO - Selects stereo or mono mode for AM/FM, and Distant/Local reception
- 12** MEM PRESET UP/DOWN - Selects memory presets starting with last preset, and toggles through menu features
- 13** TUNE UP/DOWN - Manually selects radio stations, toggles through menu settings

# COMPONENT GUIDE

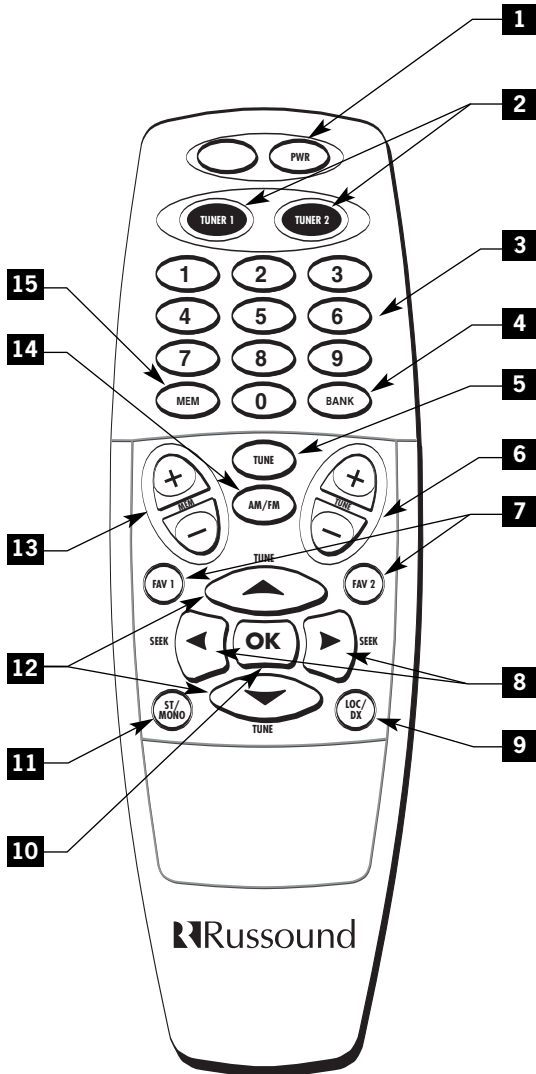
## ST2 REAR PANEL



- 1** RNET LINK IN/LINK OUT - Links to other Russound components that are RNET compatible, displays frequency and other information on the UNO keypads
- 2** RS-232 INTERFACE - The RS-232 Interface allows the tuner to be controlled by PC or other devices that have an RS-232 Interface. The RS-232 Interface also allows for firmware updates and programming (DB9 Cable)
- 3** KEYPAD PORTS - RJ-45 Keypad ports for ST2-KP tuner keypads in dedicated, non-RNET systems (Do not connect UNO keypads to these ports)
- 4** FM COAX - FM Antenna threaded F-connection (75 ohms)
- 5** LOOP ANTENNA - AM antenna connection (300 ohms)
- 6** IR INPUT - IR control input (direct IR control per tuner)
- 7** AUDIO OUTPUT - Line level audio signal outputs (RCA Cable)
- 8** FM COAX - FM Antenna threaded F-connection (75 ohms)
- 9** LOOP ANTENNA - AM antenna connection (300 ohms)
- 10** IR INPUT - IR control input (direct IR control per tuner)
- 11** AUDIO OUTPUT - Line level audio signal outputs (RCA Cable)
- 12** POWER SUPPLY - 12VDC external power supply connection

# COMPONENT GUIDE

## ST2-RC REMOTE CONTROL



- 1** POWER - Puts the tuner in/out of standby mode
- 2** TUNER CONTROL - Select Tuner 1 or Tuner 2 and all subsequent button presses affect that tuner
- 3** NUMERIC INPUT - Number buttons for direct selection of station, bank, preset
- 4** BANK SELECT - Used for direct bank selection (numeric input 1-6)
- 5** TUNE SELECT - Used for direct station selection (numeric input)
- 6** TUNE UP/DOWN - Incrementally scrolls through station numbers
- 7** FAV 1/FAV 2 - Sets/Selects Favorite 1 or 2 preset selection on ST2 tuner
- 8** SEEK UP/DOWN - Seeks the next tuned station up/down
- 9** LOCAL/DISTANCE - Optimizes station reception
- 10** OK - Confirms direct entries
- 11** STEREO/MONO - Selects stereo or mono broadcast
- 12** TUNE UP/DOWN - Scrolls through station numbers
- 13** MEM UP/DOWN - Scrolls through preset stations within selected bank
- 14** AM/FM - Selects AM or FM band
- 15** MEM SELECT - Used for direct memory select (numeric input 1-6)



# ST2 SETUP AND CONNECTIONS

## BASIC CONNECTIONS

### Power

To power the tuner, connect the 12VDC external power supply by inserting the power supply jack into the power supply connection on the tuner's rear panel.

### Audio Output

Connect one end of a dual RCA audio cable to the Tuner 1 Audio Output connection. Keep proper channel identity. Attach the other end of the RCA cables to the source input of the audio control system. Repeat the same procedure for the Tuner 2 Audio Output.

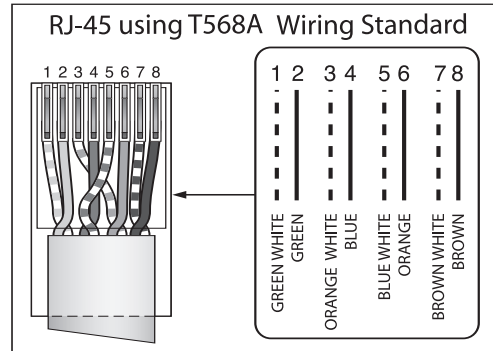
### IR Connections

The ST2 Tuner can be controlled by infrared commands received through the two IR connections on the rear panel. The ST2 Tuner component contains two tuners, which must be set up as two sources. There are two IR connections - one for each tuner in the ST2. You will need two IR link cables (Russound P/N 09-0508) for these connections. There is a unique IR code set each for Tuner 1 and Tuner 2, which allow each to be controlled independently. These codes can be learned from the ST2-RC remote into learning-capable remotes and keypads. If you are using an IR-controlled system from another manufacturer, installation should be similar. The ST2 IR codes may be learned into many other manufacturers' remote controls that have learning capability for unified control over the A/V equipment.

### RNET Connection

To link the ST2 to an RNET-compatible device, use a CAT-5 passthrough patch cable with similar wiring terminations at each end. Connect one end of the cable to the RNET Link In of the ST2 tuner, and connect the other end of the patch cable to the RNET Link Out connection on the RNET-compatible device.

### ST2-KP RJ-45 Connection Wiring



### ST2-KP Keypad to ST2 Connection (Non-RNET System)

The ST2-KP connects to the ST2 tuner with CAT-5 cable, using an RJ-45 (T568A) jack on the tuner connection end of the cable. Be sure to use the keypad ports for the ST2-KP and NOT the RNET link ports. The ST2 tuner provides connections for up to two ST2-KP keypads. An SA-ZX3 Keypad Splitter can be used to add additional keypads.

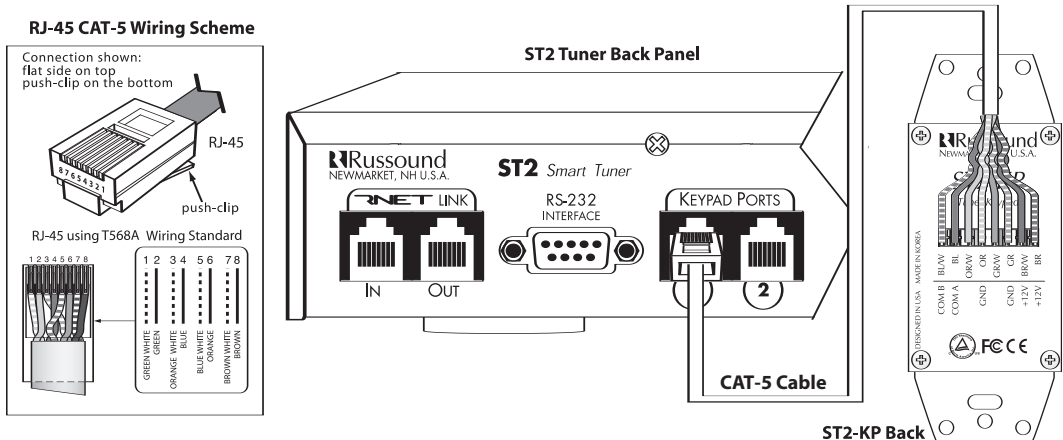
**Note:** ST2-KP keypads are designed for use with IR-controlled systems (non-RNET systems). When the ST2 Tuner is a component of an RNET system such as CAV6.6, the RNET-system UNO-S2 keypads are used

### Rack Mount Installation

The ST2 can be mounted in a standard component rack using the rack ears provided. Line up the rack ear's two rows of screw holes with the three screw holes on the side of the tuner. Use the screws provided to secure the rack ears onto the unit on both sides. The ST2 tuner should not be installed above a high heat-producing component such as a power amplifier.

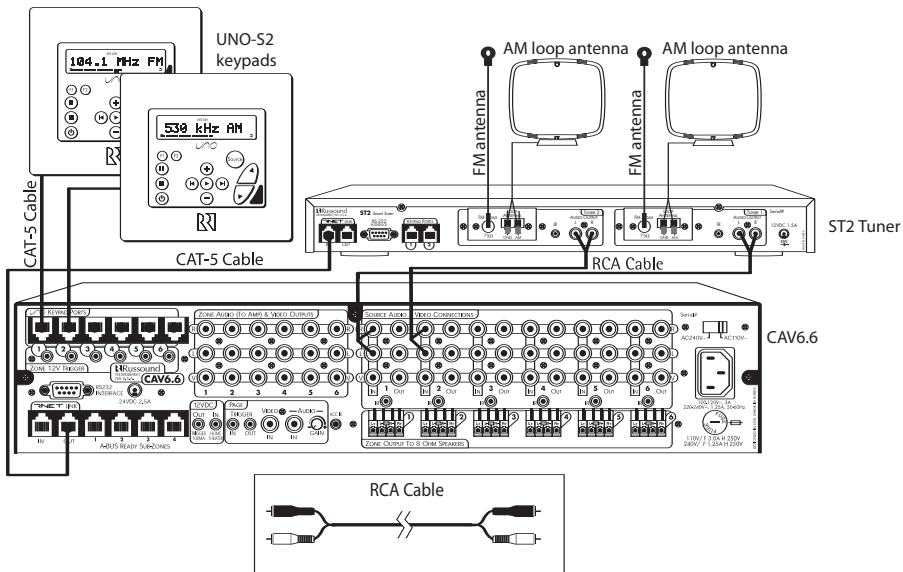
# ST2 SETUP AND CONNECTIONS

## ST2-KP AND CAV6.6 CONNECTIONS



### ST2-KP Connections to ST2 Tuner (Non-RNET Systems)

The diagram depicts a standard ST2-KP keypad connection to the keypad port on the back of the ST2. The keypad uses a 110 punchdown connection and an RJ-45 T568A connection to the tuner.

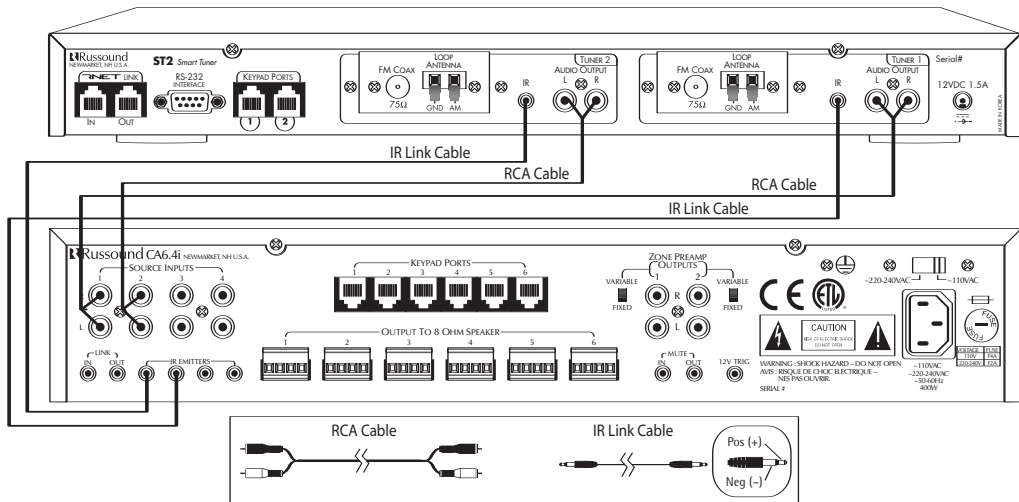


### Source Connections with CAV6.6 Controller/Amplifier

The diagram depicts a typical setup using the ST2 Tuner with a CAV6.6 amplifier. Each tuner in the ST2 unit must be connected as a separate source for audio inputs. UNO-S2 keypads are connected to the CAV6.6 keypad ports, NOT the ports on the ST2 Tuner.

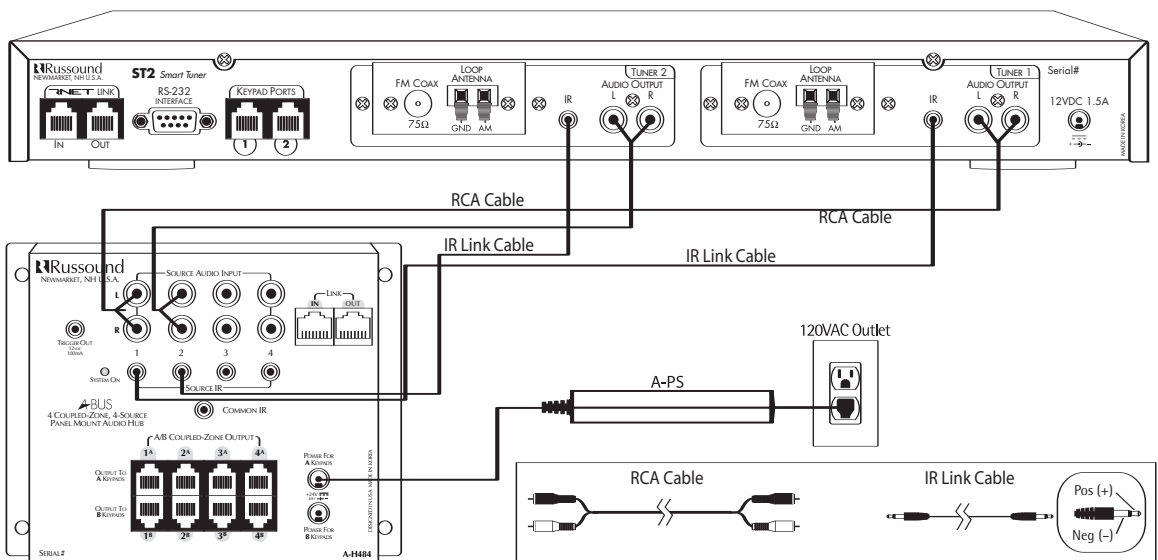
# ST2 SETUP AND CONNECTIONS

## CAi SERIES AND A-BUS CONNECTIONS



### Source Connections with CAi Series Controller/Amplifier

The diagram depicts a typical setup using the ST2 Tuner with a CAi Series amplifier. Each tuner in the ST2 unit must be connected as a separate source for audio inputs.



### Source Connections with A-BUS Audio Distribution Hub

The diagram depicts a typical setup using the ST2 Tuner with an A-BUS system's audio distribution hub. Each tuner in the ST2 unit must be connected as a separate source for audio inputs.

# ST2 SETUP AND CONNECTIONS

## ANTENNA CONNECTIONS

### AM Antenna

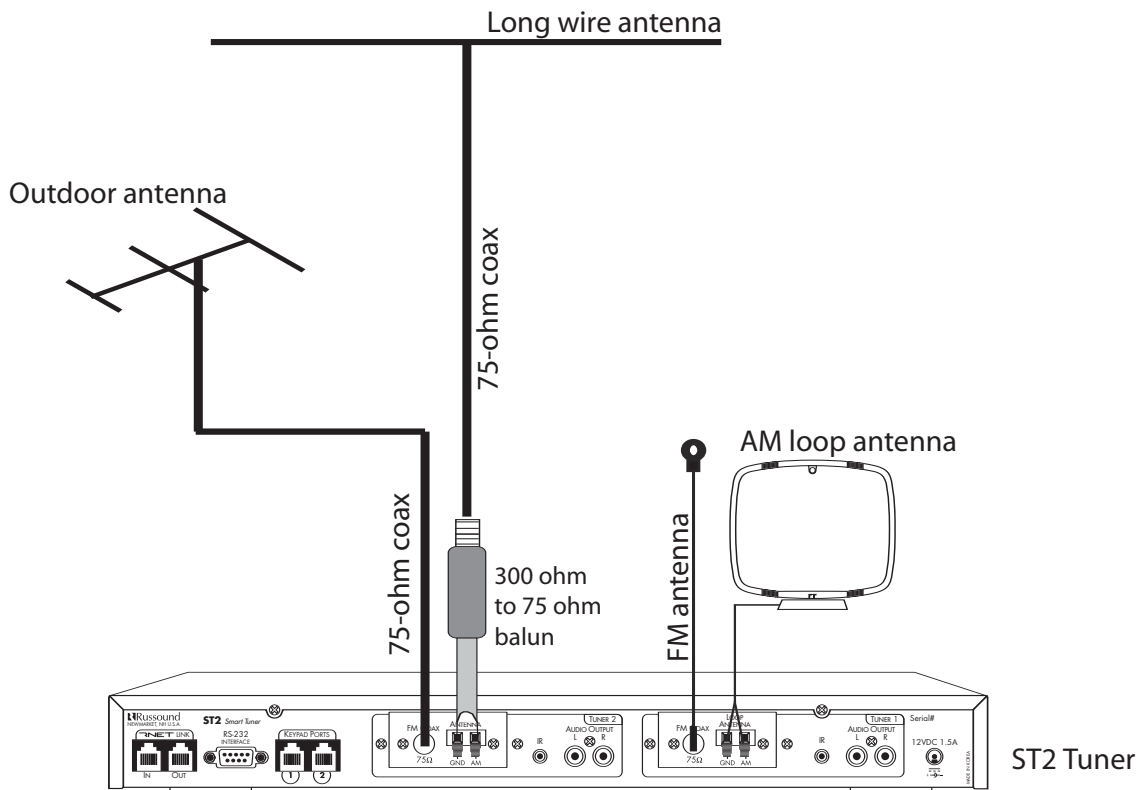
Connect the included loop antenna for AM reception to the back panel, attaching the GND (ground) and AM ends to the appropriate connections for each tuner.

### FM Antenna

Attach the included FM antenna to the FM COAX connection on the back panel by pushing the F-type quick-connect termination of the antenna onto the FM connection.

### External Antenna

It is recommended to use an external outdoor or attic-mounted long wire antenna for best performance for AM/FM reception. For AM, use a 75-ohm to 300-ohm balun at the AM connection on the tuner, and attach the 75-ohm coax cable to the balun. For FM, attach the desired length of 75-ohm coax cable directly to the FM connection on the tuner.

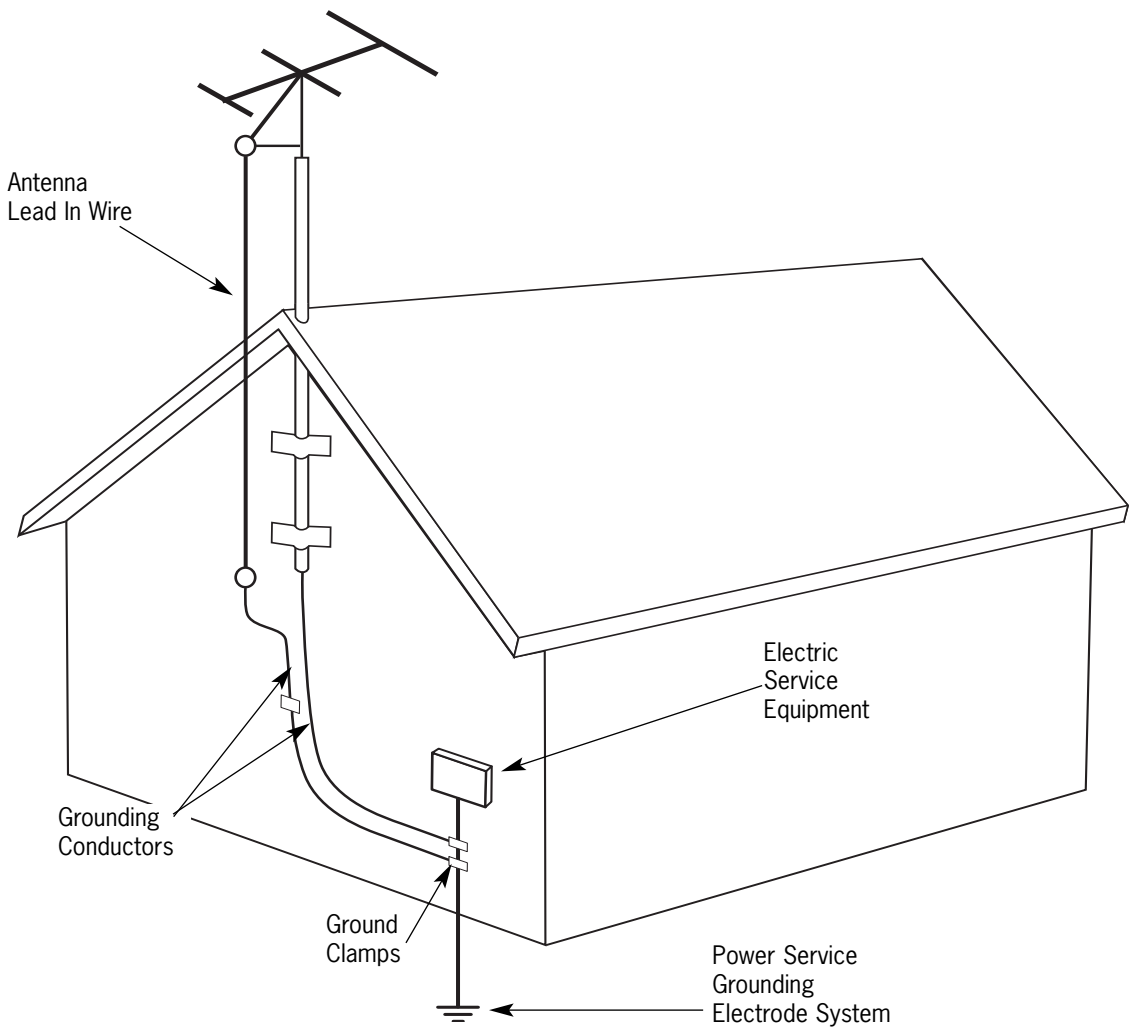


### Connecting an Indoor and Outdoor Antenna

The diagram above depicts a typical setup using the ST2 Tuner with the included FM antenna and AM loop antenna. Also shown are two outdoor antenna options (not included). (Diagram not to scale)

# ST2 SETUP AND CONNECTIONS

## ANTENNA CONNECTIONS



### Grounding an Outdoor Antenna

If the tuner is used with an outdoor antenna, the antenna must be grounded against static charges and voltage surges. Consult the instructions that came with the antenna or contact the antenna manufacturer for proper installation instructions. The diagram gives a general depiction of how an outdoor antenna should be grounded. For complete guidelines on antenna grounding procedures, please consult the National Electrical Code, Section 810, ANSI/NFPA No. 70-1984.

# ST2 OPERATION


## FRONT PANEL CONTROLS

### **Front Panel Operation**

#### **Turning the unit on**

To turn the unit on, push the On/Off button up on the front panel. Pushing the On/Off button down turns the tuner off.

#### **Selecting the desired tuner**

From the front panel, use  to toggle between Tuner 1 and Tuner 2. A backlight shows behind the selected label TUNER 1 (green) or TUNER 2 (amber) to indicate the active tuner. In addition, the LCD panel is also backlit green for Tuner 1 and amber for Tuner 2. Each time a tuner is selected the display will refresh with the current station or preset, and all subsequent memory preset entries will be associated with that selected tuner.


#### **Selecting the desired band**

Push  to switch between AM and FM reception.


#### **Selecting the desired frequency**

Press and release  and  for manual tuning.

#### **Selecting Stereo or Mono Output**

Press and release  to toggle between stereo and mono mode. STEREO or MONO appears briefly on the screen when selecting mode.

#### **Selecting Distant or Local Reception**

Press and hold  to toggle between distant and local mode. DISTANT or LOCAL appears briefly on the screen when selecting mode. Normal operation is in Distant mode. In cities, antennas can pick up multi-path signals when they bounce off buildings and get doubled. The Local mode limits the noise associated with these reflected signals.




#### **Bank/Memory Presets**

Each tuner has six banks of preset memory settings, and each bank holds six presets for a total of 36 possible presets for each tuner (72 total presets).




Presets are associated with the tuner that is selected at the time the preset is saved.

### **Memory Preset programming**

From the front panel, perform these steps:

1. Select a tuner using .
2. Use  to choose from one of six banks (1-6).
3. Select the desired band (AM/FM) using .
4. Tune to the desired station.
5. Push the desired memory preset (M1 through M6) button for more than 2 seconds. When the memory preset is saved, the appropriate preset number (M1 through M6) and SAVED appears on the LCD. The selected station setting reappears and the sound resumes after the button is released.

### **Recalling a Memory Preset**

To recall a memory preset, use  to select the desired bank, then press the desired preset button (M1 to M6). In addition to direct selection, the memory presets can be accessed by using  and  to scroll through all presets for the bank selected.

### **Backup and Restore**

Once all of the tuner settings are completed, it may be advisable to create a backup of the programmed settings for future use. The backup will then be available in case tuner settings need to be restored. The "RNET Backup Utility" is available through the Document Center at [www.russound.com](http://www.russound.com). Also required are a DB9 male-to-female cable and laptop or desktop PC.


# ST2 OPERATION

## ST2-RC REMOTE CONTROL

### **ST2-RC Remote Control Operation**



#### **Turning the unit on**

To take the ST2 tuner out of standby mode, push

 or any other button except TUNER 1 or TUNER 2.

#### **Selecting the desired tuner**



(Note: To change the tuner that is audio-active, you must have some other system control in place to change the source)


To control a tuner, push  or . When pressed, these buttons will be backlit green for Tuner 1 and amber for Tuner 2. Each time a tuner is selected the display will refresh with the current station or preset for that tuner, *and all subsequent button presses and memory preset entries will be associated with that selected tuner.*

#### **Selecting the desired band**




Push  to switch between AM and FM reception.

#### **Selecting the desired frequency**


Use  and  for manual tuning. To move quickly through the stations, press and hold either of the Tune buttons for more than 1.5 seconds.

To directly select a station, press , and enter the three- or four-digit station frequency (1071 for 107.1, etc.). European regions use five-digit station frequencies.


#### **Frequency Seek**

The SEEK function is performed by pressing and releasing  to seek lower frequencies or  for higher frequencies. SEEK tuning begins at the current frequency, seeks upward and stops at the next tuned station. Pushing  continues the SEEK function. Once the highest frequency is reached, the tuner continues in SEEK mode at the lowest frequency.





#### **Selecting Stereo or Mono Output**

Press  to toggle between stereo and mono mode. STEREO or MONO appears briefly on the screen when selecting mode. Normal operation is in stereo mode. On a preset, the stereo/mono setting is saved for that preset.





#### **Selecting Distant or Local Reception**

Press  to toggle between Distant and Local mode. DISTANT or LOCAL appears briefly on the screen when selecting mode. Normal operation is in Distant mode.

#### **Recalling a Memory Preset**

To recall a memory preset, select the desired tuner, press  to select the desired bank, then press  and enter the desired preset number (1 to 6). The memory presets can also be accessed by using  and  to scroll through all presets for the selected bank.

#### **Saving Favorites**



The remote control stores two “favorites” (similar to memory presets) per tuner. These are set simply by selecting either Tuner 1 or Tuner 2, setting the desired frequency and pressing and holding  or  until “FAV1 (2) saved” appears on the tuner. Stored Favorites are then recalled by pressing either  or .

# ST2 OPERATION


## ST2-KP KEYPAD CONTROLS

### ST2-KP Keypad Operation

#### **1 Turning the keypad on/off**

To activate the ST2-KP, press . Press  to power down the keypad display. The keypad remains powered until the ST2 Tuner is turned off.





#### **1 Selecting the desired tuner**

To select a different tuner, press and hold . (If the keypad has been hardware jumper-selected to Tuner 1 or Tuner 2, it will not switch between the two tuners.) The backlight color of the display will be green for Tuner 1 and amber for Tuner 2. Each time a tuner is selected the display will refresh with the current station or preset for that tuner, and *all subsequent button presses and memory preset entries will be associated with that selected tuner.*



#### **2 Selecting the desired band**

Push  to switch between AM or FM band.



#### **3 Selecting the desired frequency**

Use  and  for manual tuning. To move quickly through the channels, press and hold either  or  for more than 1.5 seconds. European frequencies show in .05 MHz increments.

#### **4 Selecting a Bank**

To select a bank, select the desired tuner, then press and hold  or  to select the desired bank. The bank name will show on the display.

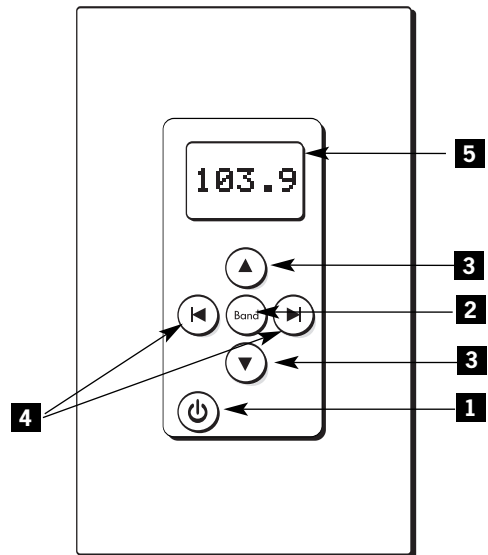
#### **4 Recalling a Memory Preset**

To recall a memory preset, press and release  or  to scroll through the presets for the selected bank. (Memory presets must be stored for ST2-KP recall)

#### **5 ST2-KP Keypad Display**

The 5-character backlit display shows frequency and band, plus presets. Messages scroll twice, then display the first 5 characters.

**ST2-KP Keypad-Front Panel**





# ST2 OPERATION

## UNO-S2 KEYPAD CONTROLS WITH CAV6.6


### **CAV6.6-UNO-S2 Keypad Operation**

**NOTE:** To control the ST2 Tuner through the UNO-S2 keypad, the tuner must be configured as a source using the CAV6.6 programming steps.


#### **Turning the unit on**

The tuner is power managed by the CAV6.6 or other RNET-enabled controller. If the tuner is in standby mode, any button press of the UNO-S2 keypad will bring the tuner out of standby mode.





#### **Selecting the desired tuner**

On the UNO-S2 keypad, press  to select either Tuner 1 or Tuner 2 by choosing the tuner's preassigned source number.



#### **Selecting the desired band**

Push  to toggle between AM band and FM band reception.


#### **Selecting the desired frequency**


Use  and  for manual tuning. The frequency will appear on the keypad and the active tuner. To move quickly through the stations, press and hold either  or  for more than 1.5 seconds.

#### **Frequency Seek**



A press on  will seek the next higher tuneable station. If a tuneable station is not found, end the SEEK function by pressing  again.

#### **Frequency Scan**



To scan, press and hold then release . The tuner scans through tuned stations with a 5-second preview before moving to the next station.

To end scanning, press  again.


#### **Selecting a Bank**

To select a bank, press and hold  for bank up or  for bank down. The bank's name will be temporarily displayed on the UNO-S2.

#### **Recalling a Memory Preset**

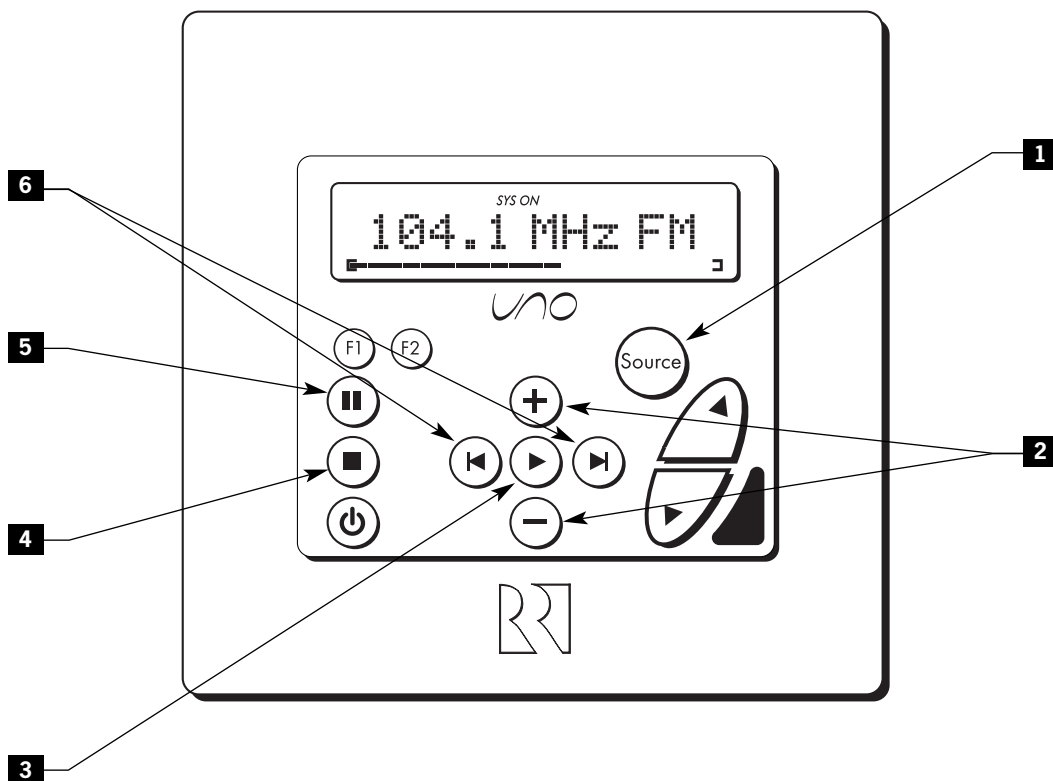
Press  and  to scroll through the memory presets for the selected bank. This procedure will step through all of the presets in the current bank, then loop back to start at the first one. Only configured presets will be displayed.

#### **Mute**

Press  to mute/unmute the tuner audio output.

# ST2 OPERATION

## UNO-S2 KEYPAD CONTROLS WITH CAV6.6



**1** TUNER SELECTION - Select source number assigned to TUNER 1 or TUNER 2

**2** TUNE UP/DOWN - Used for manual station selection

**3** SELECT - Selects AM or FM band

**4** SEEK - Seeks next higher tuned station (press)

**4** SCAN - Scans through tuned stations with 5-second preview before next station (press and hold)

**5** MUTE - Mutes/unmutes tuner audio output

**6** BANK SELECT - Used for bank selection (press and hold)

**6** MEM UP/DOWN - Scrolls through memory preset stations (press)

**NOTE:** UNO-S2 keypads are connected to the CAV6.6 to control the ST2 through RNET. UNO-S2 keypads do not connect directly to the ST2 Tuner.

# ST2 OPERATION


## UNO-LRC1 REMOTE CONTROL WITH CAV6.6

### UNO-LRC1 Remote Control Operation

#### Turning the unit on

The tuner is power managed by the CAV6.6 or other RNET-enabled controller. If the tuner is in standby mode, any button press of the UNO-LRC1 will bring the tuner out of standby mode when used with the UNO keypad.





#### Selecting the desired tuner

To select a tuner, push  and choose the source number preassigned to Tuner 1 or Tuner 2, or use the UNO numeric source inputs at the bottom of the UNO-LRC1.








#### Selecting the desired band

Push  to toggle between AM/FM reception.

#### Selecting the desired frequency



Use the Channel  and  or  and  for manual tuning. To move quickly through the stations, press and hold the button for more than 1.5 seconds. To directly select a station, enter the three- or four-digit frequency (1071 for 107.1, etc.). European regions use five-digit station frequencies.

#### Frequency Seek



The SEEK function is performed by pressing and releasing the Select  or  or . To seek higher frequency station press . Press  for lower frequencies. Tuning begins at the current frequency, seeks upward (or downward) and stops at the next tuned station. Pushing  or  again continues the SEEK function. Once the highest frequency

is reached, the tuner continues SEEK mode at the lowest frequency.





#### Frequency Scan

To scan, press and hold then release . The tuner scans through tuned stations with a 5-second preview before moving to the next station. To end scanning, press  again.


#### Selecting a Bank

To select a bank, press and hold  for bank up or  for bank down.

#### Recalling a Memory Preset

Press  and  or  and  to scroll through a loop of all the memory presets for the currently selected bank. Only configured presets will be displayed.

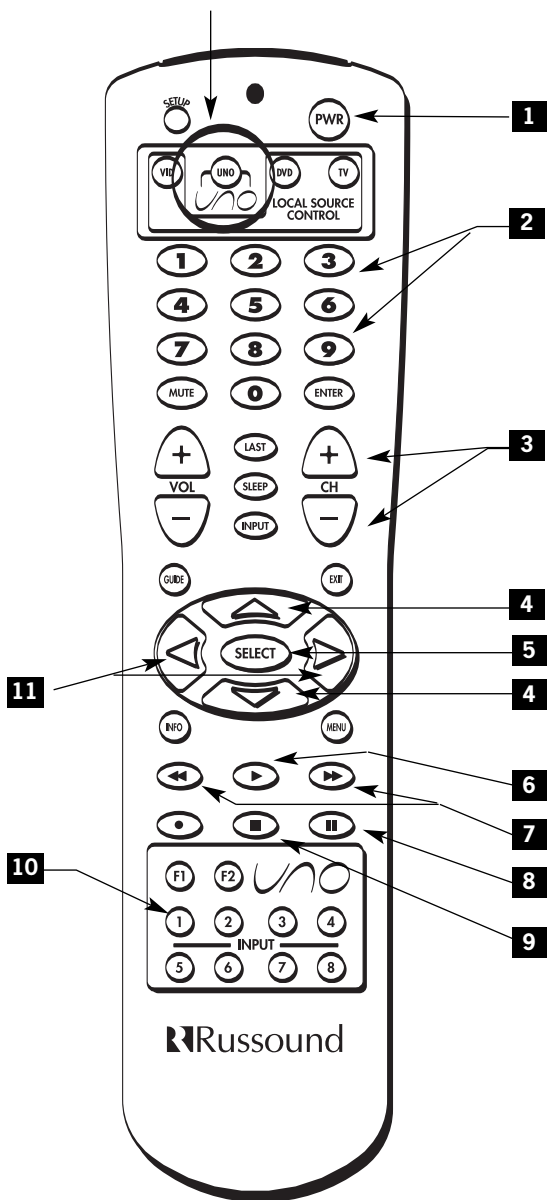
#### Mute

Press the  button to mute/unmute the tuner audio output.

# ST2 OPERATION

## UNO-LRC1 REMOTE CONTROL WITH CAV6.6

**UNO SELECTION** - UNO must be the selected source for control of the CAV6.6 and any connected components. Select UNO before sending UNO-LRC1 remote commands.



- 1** POWER - Power managed by CAV6.6
- 2** NUMERIC INPUT - Number buttons for direct input of frequency, preset, bank
- 3** TUNE UP/DOWN - Incrementally scrolls through tuned stations
- 4** TUNE UP/DOWN - Incrementally scrolls through channels or tuned stations
- 5** SELECT - Confirms numeric selection
- 6** PLAY - Selects AM or FM band
- 7** BANK UP/DOWN - Used for bank selection (press and hold)
- 7** MEM UP/DOWN - Scrolls through memory presets for selected bank (press)
- 8** MUTE - Mutes/unmutes tuner audio output
- 9** SCAN - Scans through tuned stations with 5-second preview before next station (press and hold)
- 9** SEEK UP/DOWN - Seeks next tuned station up or down (press)
- 10** TUNER SELECTION - Select source number assigned to TUNER 1 or TUNER 2
- 11** SEEK UP/DOWN - Seeks next tuned station up or down

# ST2 TUNER PROGRAMMING

## ST2 TUNER SETUP MENU

### ST2 Tuner Setup Menus

**Note:** The Setup Menu procedures must be performed from the ST2 Tuner front panel.

The ST2 Tuner Setup Menus provide setup and naming procedures for the ST2 main chassis, and each AM/FM tuner module. These procedures include source number assignments, assigning a custom name to a memory preset or a bank, choosing a region for AM/FM operation (US or Euro), factory initialization and system information.

If the ST2 is used with a **non-RNET** system, the ST2 can be connected and operated without any setup programming. Follow the setup menus if custom names are desired, or for system information.

If the ST2 is used with an **RNET system** such as **CAV6.6**, the following minimum setup must be performed for the ST2 to be properly controlled by the CAV6.6.

1. ST2 Chassis Setup Menu - Assign source numbers to Tuner 1 and Tuner 2.
2. CAV6.6 Source Setup Menu - Assign the corresponding source numbers to Tuner 1 and Tuner 2.
3. CAV6.6 Source Setup Menu - Assign command type PERIPHERAL to Tuner 1 and Tuner 2.

**NOTE:** Once the programming procedures are completed, cycle power first to the Tuner and then to the CAV6.6 (must be powered on last) to establish a connection.

### ST2 Chassis Setup Menu Source Number (Chassis)

The Source Number procedure permits Tuner 1 and Tuner 2 to be assigned the proper peripheral source identities as will be assigned in the CAV6.6 Source Setup.

1. Enter the Setup Menu by pressing and holding the TNR SEL button.
2. TUNER SETUP appears. Press MEM Up/Down until SOURCE NUM appears on the tuner.
3. Press BAND. TUNER # appears.
4. Press the Tune Up/Down buttons to select the Tuner #.
5. Press BAND. SOURCE NUM appears.
6. Press the Tune Up/Down buttons to scroll through the source numbers 1-6.
7. Press BAND to select the source number (as assigned in the CAV6.6 setup process).
8. Repeat the process for the next tuner.

9. Press TNR SEL to exit the Source Number menu.

### Update Firmware (Chassis)

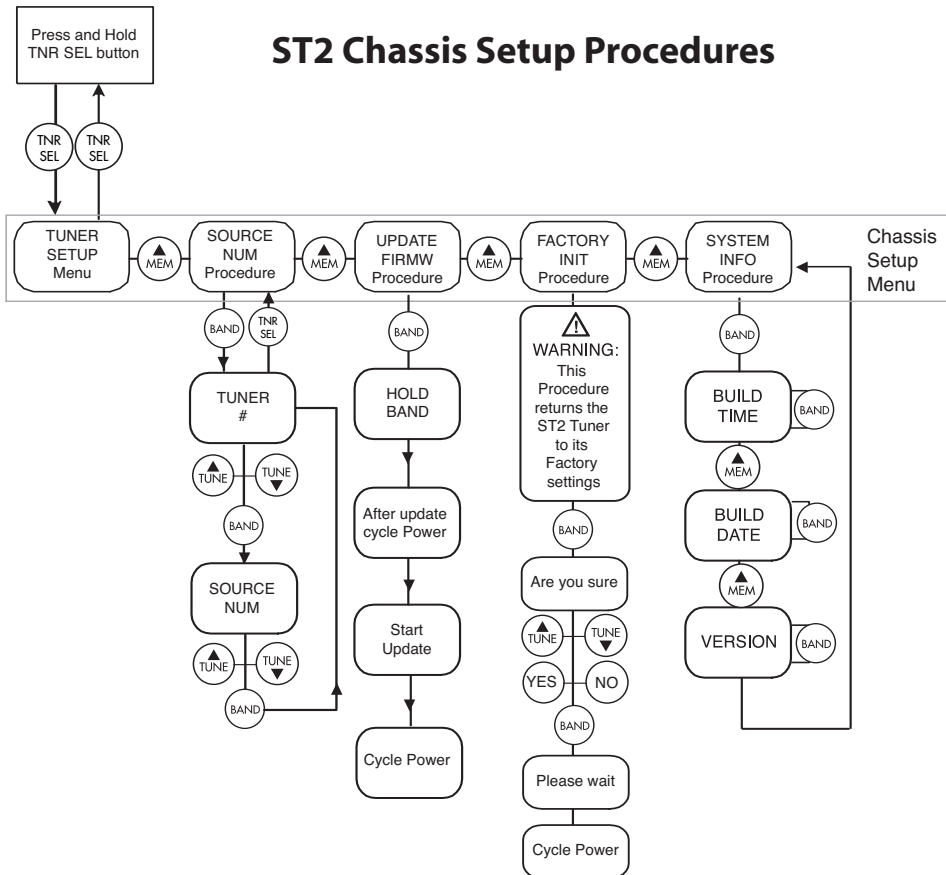
The Update Firmware procedure allows the ST2 tuner's OS firmware to be updated. The procedure is performed using a DB9 serial cable with one end connected to the RS-232 port on the back of the tuner and the other connected to a PC or laptop. If an OS firmware update is available, it can be obtained through the Document Center at [www.russound.com](http://www.russound.com). XM tuner module firmware must be performed by an authorized Russound service facility.

1. Enter the Setup Menu by pressing and holding the TNR SEL button.
2. TUNER SETUP appears. Press MEM Up/Down until UPDATE FIRMW appears on the tuner.
3. Press BAND to enter the UPDATE FIRMW menu.

(continued)

# ST2 TUNER PROGRAMMING

## ST2 TUNER SETUP MENU



### Update Firmware (Chassis) (cont'd)

4. "Hold BAND" appears on the tuner.
5. While pressing and holding BAND, "After update cycle power" appears on the tuner display.
6. When "Start Update" appears on the tuner display, start the update program. "Finished" appears on the computer screen when complete.
7. Cycle power to the tuner.

### Factory Initialization (Chassis)

The Factory Initialization procedure allows the erasure of all programmed settings and returns them to the factory default settings.

1. Enter the Setup Menu by pressing and holding the TNR SEL button.
2. TUNER SETUP appears. Press MEM Up/Down until FACTORY INIT appears on the tuner.
3. Press BAND to enter the FACTORY INIT menu.
4. "Are you sure" appears on the tuner. Using the Tune Up/Down buttons, view the "Yes" and "No" selections.
5. Press BAND to select. A "No" selection returns to the top of the Factory Init menu. A "Yes" begins the initialization.
6. "Please wait" appears on the tuner during the process and "Cycle Power" appears when complete.
7. Cycle power on the ST2 tuner.

# ST2 TUNER PROGRAMMING

## ST2 TUNER SETUP MENU

### System Info (Chassis)

The System Info menu shows the ST2 Tuner's manufacturing build properties.

1. Enter the Setup Menu by pressing and holding the TNR SEL button.
2. TUNER SETUP appears. Press MEM Up/Down until SYSTEM INFO appears on the tuner.
3. Press BAND.
4. Press BAND at "Build Time" to view.
5. Press MEM Up/Down to advance.
6. Press BAND at "Build Date" to view.
7. Press MEM Up/Down to advance.
8. Press BAND at "Version" to view.
9. Press TNR SEL to exit the System Info menu.

### (END OF ST2 CHASSIS SETUP)

### Tuner Setup Menu for AM/FM

***It is important to select the desired tuner (Tuner 1 or Tuner 2) using the TNR SEL button BEFORE accessing the Tuner Setup Menus.***

### Memory Name (AM/FM)

A memory preset *must* be created and saved before it can be named. Once it is saved, the preset's Tuner #, Bank # and Memory # must be entered in the following procedure.

1. Enter the Setup Menu by pressing and holding the TNR SEL button.
2. TUNER SETUP appears. Press BAND again.
3. MEMORY NAME appears on the tuner.
4. Press BAND.
5. Bank # appears.
6. Press the Tune Up/Down buttons to select the Bank #.
7. Press BAND to advance.
8. Press the Tune Up/Down buttons to select a Memory #.
9. Press BAND to advance. MEMORY NAME

appears again.

10. Press BAND to access the Memory Name entry screen.
11. Press Tune Up/Down to select a character and MEM Up/Down to change a character position. Up to 12 characters can be entered one by one. A blinking cursor indicates the placement of the character being entered.
12. Press BAND when memory name is entered.
13. SAVE CHANGES will appear.
14. Press Tune Up/Down to select Yes or No.
15. Press BAND to save memory name. The Memory Name menu returns to the Tuner # prompt to name other presets, or press TNR SEL to exit the Memory Name menu.

### Bank Name (AM/FM)

A custom name can be assigned to each of the six banks of each tuner.

1. Enter the Setup Menu by pressing and holding the TNR SEL button.
  2. TUNER SETUP appears. Press BAND.
  3. MEMORY NAME appears. Press MEM Up/Down until BANK NAME appears on the tuner.
  4. Press BAND.
  5. Bank # appears.
  6. Press BAND to advance.
  7. Press the Tune Up/Down buttons to select the Bank #.
  8. Press BAND. BANK NAME appears again.
  9. Press BAND to access the Bank Name entry screen.
  10. Press Tune Up/Down to select a character and MEM Up/Down to change a character position. Up to 12 characters can be entered one by one. A blinking cursor indicates the placement of the character being entered.
  11. Press BAND when bank name is entered.
  12. SAVE CHANGES will appear.
  13. Press Tune Up/Down to select Yes or No.
- (continued)

## ST2 TUNER PROGRAMMING

### ST2 TUNER SETUP MENU

**Bank Name (AM/FM) (cont'd)**

**14.** Press **BAND** to save bank name. The Bank Name menu returns to the Tuner # prompt to name other banks, or press **TNR SEL** to exit the Bank Name menu.

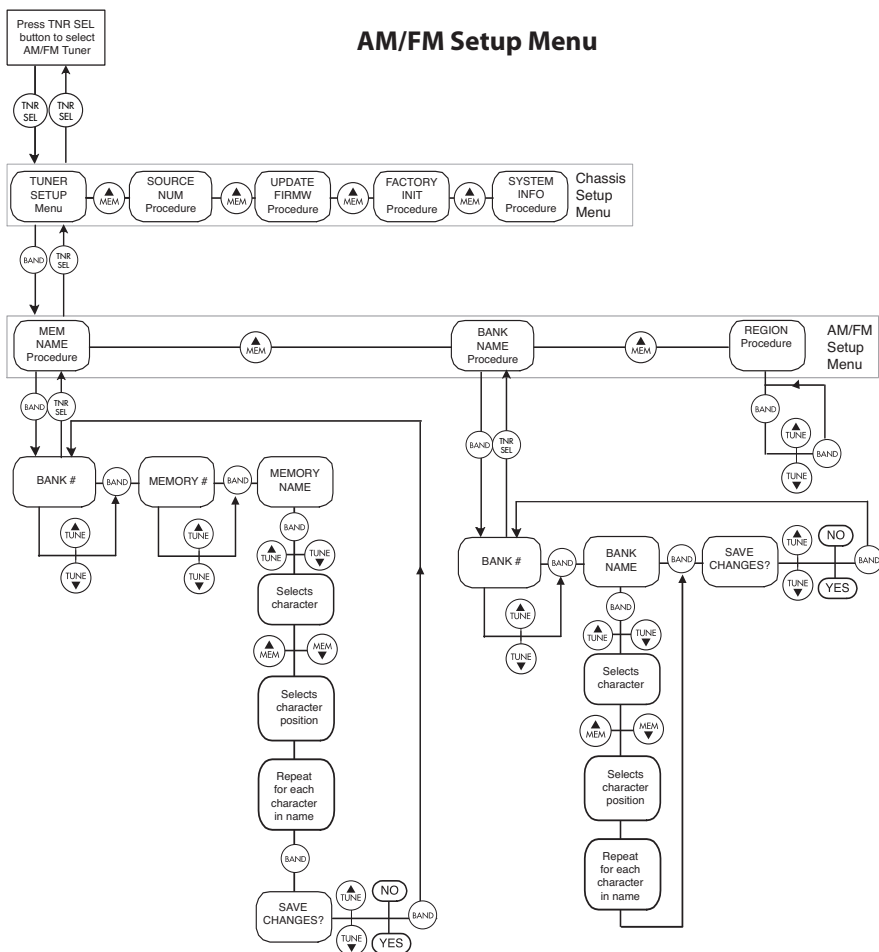
## Region (AM/FM)

The Region procedure assigns either US or Euro to the tuner. The difference between the two is that US FM frequencies operate in .2 MHz increments, while European FM frequencies operate in .05 MHz increments.

**(END OF AM/FM TUNER SETUP)**

## Backup and Restore

Once all of the tuner settings are completed, it may be advisable to create a backup of the programmed settings for future use. The backup will then be available in case tuner settings need to be restored. The backup and restore PC application "RNET Backup" is available through the Document Center at [www.russound.com](http://www.russound.com). Also required are a DB9 male-to-female cable and laptop or desktop PC.





# ST2 TUNER PROGRAMMING

## PROGRAMMING FOR CAV6.6 USE

**NOTE:** The CAV6.6 firmware **must be version 2.00.01 or higher** and UNO-S2 firmware **must be version 3.00.01 or higher** to control the ST2 Tuner. Use the **System Info Menu** of the CAV6.6 to check the firmware version. If the firmware **is not the proper revision as noted here**, visit the **Document Center** at [www.russound.com](http://www.russound.com) to obtain the latest version.

**To Program the CAV6.6 to operate with the ST2 Tuner:**  
(refer to the CAV6.6 Instruction Manual for details)

1. Enter the Setup Menu by pressing the Setup button on the side of the UNO-S2 keypad.
2. SOURCE SETUP will appear. Enter the Source Setup Menu by pressing the Play button on the UNO-S2 keypad.
3. BASIC SETUP will appear. Enter the Basic Setup Menu by pressing the Play button again.
4. SOURCE NUM will appear. Use + and - buttons to select the source number to which Tuner 1 is connected. Press the Play button to enter your choice.
5. SOURCE NAME will appear. Use + and - buttons to select the name for the source (e.g., Tuner 1). Press the Play button to enter your choice.
6. COMMAND TYPE will appear. Select PERIPHERAL from the list. Press the Play button to enter this choice.
7. SAVE CHANGES? appears. Select "Yes" and press the Play button to save changes.
8. SOURCE NUM appears again. **Repeat steps 4 through 7 to configure the second tuner.**
9. Press the Setup button three times to back out of the Installation Menu.

### **Source Configuration Note:**

When the ST2 Tuner is used with the CAV6.6 or other RNET controller, it is configured as an RNET command type "Peripheral" and is connected via the RNET bus. This makes the tuner behave as a fully integrated device with UNO-S2 keypad support. Each tuner must be set up with a unique source number (1 - 6) or unassigned. An unassigned tuner is not controlled by the RNET bus.

**Key Function Note:** When using the tuner with the CAV6.6-S2 system, do not reassign keypad and remote buttons for tuner control in the CAV6.6 Key Configuration Menu. When the tuner is assigned the "Peripheral" command type in the CAV6.6 Setup Menu, key assignments and functions are automatically assigned and will operate as shown in the preceding UNO-S2 keypad and UNO-LRC1 remote diagrams.



# TECHNICAL SPECIFICATION

## ST2 Smart Tuner

Dimensions: 17"W x 8"D x 1.8"H (43 x 20.3 x 4.4 cm)  
Weight: 7 lbs. (3.2kg)  
Power Supply: 12VDC 1.5A  
Frequency Range: AM 530 - 1710 kHz  
FM 87.7 - 107.9 MHz  
FM Antenna impedance: 75 ohm unbalanced  
Impedance: 300 ohm balanced

### AM

Sensitivity @ S/N: 20dB 55 dBu  
Image rejection: 33dB  
S/N ratio: 45 dB

### FM

Sensitivity @ S/N: 30 dB 6dB max 12 dBu  
Image rejection: 80 dB  
S/N ratio: 60 dB



The Russound ST2 Tuner is fully guaranteed against all defects in materials and workmanship for two (2) years from the date of purchase. During this period, Russound will replace any defective parts and correct any defect in workmanship without charge for either parts or labor.

For this warranty to apply, the unit must be installed and used according to its written instructions. If service is necessary, it must be performed by Russound. The unit must be returned to Russound at the owner's expense and with prior written permission. Accidental damage and shipping damage are not considered defects, nor is damage resulting from abuse or from servicing by an agency or person not specifically authorized in writing by Russound.

This Warranty does not cover:

- Damage caused by abuse, accident, misuse, negligence, or improper installation or operation
- Power surges and lightning strikes
- Normal wear and maintenance
- Products that have been altered or modified
- Any product whose identifying number, decal, serial number, etc. has been altered, defaced or removed

Russound sells products only through authorized Dealers and Distributors to ensure that customers obtain proper support and service. Any Russound product purchased from an unauthorized dealer or other source, including retailers, mail order sellers and online sellers will not be honored or serviced under existing Russound warranty policy. Any sale of products by an unauthorized source or other manner not authorized by Russound shall void the warranty on the applicable product.

Damage to or destruction of components due to application of excessive power voids the warranty on those parts. In these cases, repairs will be made on the basis of the retail value of the parts and labor. To return for repairs, the unit must be shipped to Russound at the owner's expense, along with a note explaining the nature of service required. Be sure to pack the unit in a corrugated container with at least three (3) inches of resilient material to protect the unit from damage in transit.

Before returning a unit for repair, call Russound at (603) 659-5170 for a Return Authorization number. Write this number on the shipping label and ship to:

Russound  
ATTN: Service  
5 Forbes Road  
Newmarket, NH 03857

Due to continual efforts to improve product quality as new technology and techniques become available, Russound/FMP, Inc. reserves the right to revise system specifications without notice.



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